

TITLE: THREE-DIMENSIONAL INTERLOCKING PUZZLE

FIELD OF THE INVENTION

5

This invention relates to puzzles. In particular, it relates to the type of puzzle which requires the ingenious combination of dissimilar parts to form an assembled object.

10

BACKGROUND OF THE INVENTION

While other puzzles have previously been devised which require a specific arrangement of pieces to form a cruciform shape, the present invention is believed to be 15 unique in several ways.

Among the prior art, U.S.P. 943,496 to A. Weigt is a puzzle which constitutes six pieces, but begins with a foundation block and other pieces which are dissimilar in shape and their mode of assembly to the present 20 invention.

U.S.P. 1,425,107 to D. Levinson is also a cruciform puzzle when assembled, but the pieces do not have the same characteristics as the present invention, in that two of the parts are similar and one is a blank 25 rectangular prism (i.e., it has no recesses or notches).

U.S.P. 5,040,797 to D.H. Dykstra provides a similar intersecting puzzle but the pieces are of different lengths, different shapes, and result in a different assembled configuration.

30 It is the object of this invention to provide a unique challenging and entertaining puzzle which acquires considerable ingenuity and endeavor to assemble in the proper manner.

35

## SUMMARY OF THE INVENTION

The present invention constitutes six interlocking parts which can be assembled in a particular way to form a three-dimensional assembly of rectangular blocks which

5 intersect at right angles to each other to form a three-dimensional cruciform shape.

The present invention provides a challenging and entertaining puzzle which is unique in several ways. First of all, all the parts of the puzzle are different,

10 one from another and no two parts can be interchanged. Secondly, none of the parts are blank in the sense that they are an unaltered rectangular prism. This results in a more difficult puzzle, in that none of the parts are easily identified as a starting point on the

15 "last piece" of the puzzle. The particular arrangement of the parts results in an assembly which is highly specific and difficult to perceive. The resulting object, when assembled, is a cruciform shape comprising three rectangular blocks with arms extending on either

20 side of this mutual intersection and each comprising two parts. Each of the blocks intersects the other two rectangular blocks at right angles to form a three-dimensional intersecting shape.

## 25 BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 is a perspective illustration of the puzzle fully assembled;

Figure 2 illustrates Part A in which Figure 2-1 is a perspective view, 2-2 is a plan view, and 2-3 is an

30 elevation view;

Figure 3 illustrates Part B in which Figure 3-1 is a perspective view, 3-2 is a plan view, and 3-3 is an elevation view;

Figure 4 illustrates Part C in which Figure 4-1 is a perspective view, 4-2 is a plan view, and 4-3 is an elevation view;

5 Figure 5 illustrates Part D in which Figure 5-1 is a perspective view, 5-2 is a plan view, and 5-3 is an elevation view;

Figure 6 illustrates Part E in which Figure 6-1 is a perspective view, 6-2 is a plan view, and 6-3 is an elevation view;

10 Figure 7 illustrates Part F in which Figure 7-1 is a perspective view, 7-2 is a plan view, and 7-3 is an elevation view;

Figure 8 illustrates the assembly step in which Part A is connected to Part B;

15 Figure 9 shows the next step in assembly in which Parts A and B are connected to Part C;

Figure 10 illustrates the next step in assembly in which Part D is connected to Parts A, B, and C;

20 Figure 11 illustrates how Parts E and F are connected and then assembled to Parts A, B, C, and D.

#### DESCRIPTION OF THE PREFERRED EMBODIMENT OF THE INVENTION

In the illustrated embodiment, Figure 1 is a perspective view of the assembled three dimensional 25 cruciform puzzle in which Part A and Part F are aligned side by side to form a rectangular block intersecting the similar rectangular block formed by Parts C and D and the similar rectangular block formed by Parts B and E, all of which intersections are at right angles to 30 form a three dimensional cruciform shape. Each block has arms extending longitudinally on either side of the mutual intersection.

The following descriptions deal with each of the individual parts labeled A, B, C, D, E and F. For ease of reference, the parts are described in the following manner. The ends are identified as 1 and 2 preceded by 5 the letter labeling the part with numeral 1 identifying the end closest to the label. The sides are identified by the letter and numbered 3, 4, 5, and 6 in sequence in a clock-wise manner (viewed from the labeled end) beginning with the side which contains the identifying 10 letter.

As seen in Figure 2, Part A is an oblong rectangular part having a first end A-1 and a second end A-2.

In the plan and elevation views dimensions are 15 shown which are not intended to restrict the scope of this invention to any particular size but are useful to illustrate the relevant proportion of the parts and size and position of the notches or recesses created in the sides thereof. Therefore, the term "units" is used to 20 refer to an arbitrary choice of linear measure. While not all of the sides and dimensions are referred to in this text, they can be determined from the drawings.

In Figure 2-2 a notch 20 of 10 units in length having a depth of one-half of the 5 thickness of the 25 part is created near the mid point in the length of the part, as seen in plan view. In elevation view, Figure 2-3, two notches 22 and 24 of five units each appear along the bottom of side A-4, separated by an island 26, also of 5 units.

30 In Figure 3 a notch 30 of 10 units in length and 5 units in depth is created in side B-3 and the notch 32 of 15 units appears inside B-4 with the left hand side of the respective notches coinciding.

In Figure 4 Side C-3 has a recess 40 of 10 units to the left next to an island 44 of units and another recess 42 of 5 units to the right in plan view. In elevation view the above-mentioned notches are connected 5 by an upper notch 46 of 10 units on side C-6.

In Figure 5 Part D has a single recess 50 in the middle of side D-3 extending the full elevation and half the plan depth with a longitudinal dimension of 10 units.

10 In Figure 6 Part E is shown with a pair of notches 60 and 62, in Side E-3, extending the full elevation of the part and to a depth of one-half of the thickness of the part, each having a longitudinal dimension of 5 units and separated by an island 64 having a 15 longitudinal dimension of 10 units and a surface 65 slightly recessed from the surface E-3 by 0.30 units. In elevation view a notch 66 of 10 units appears in Side E-4.

Figure 7 illustrates Part F in which a recess 70 of 20 10 units extends to a depth of half the dimension of the part in plan view and extends the full height of the part in elevation view as seen in Figures 7-2 and 7-3. On the opposite side a recess 72 of 10 units 10 appears on surface F-5.

25 The drawings Figure 8, 9, 10 and 11 illustrate the method and sequence for assembling the parts to complete the puzzle.

As illustrated in Figure 8, Part A is connected to Part B, at right angles, in an orientation which places 30 the side A-4 and the side 8-4 adjacent the symmetrical center of the assembled puzzle. The center of the puzzle is considered to be the point where the plane of the rectangular blocks between the parallel parts intersect.

Next, as seen in Figure 9, Part C is placed perpendicular to both Part A and Part B in an orientation in which side C-3 is located closest to the symmetrical center of the assembled puzzle, as shown in 5 Figure 10.

As also seen in Figure 10, Part O is located parallel to and overlying Part C so that the notch 50 faces downward towards the symmetrical center of the assembled puzzle.

10 However, Part D should be inserted only far enough to overlie a portion of Part C so that the edge of notch 50 on Part D lines up with the edge of the notch 40 in Part C, as seen in Figure 11.

15 Next, Part E and Part F are connected at right angles so that side E-3 and side F-3 are each oriented to be adjacent to the symmetrical center of the assembled puzzle.

20 In this configuration the end F-1 can be inserted through the opening provided by Parts C and O until E and B are adjacent and parallel.

25 When A and F are aligned, and B and E are aligned, the Part D partially overlying Part C can be moved to align with Part C. This will complete the assembly and lock the puzzle in its completed configuration as seen in Figure 1.

Although the foregoing description has referred to the parts by letters embossed thereon, it should be realized that the actual puzzle may or may not have such indicia. Of course, having the parts so labeled will 30 make the parts easier to identify and the puzzle easier to solve, but the absence of such labels will make the puzzle more challenging, in that it makes the parts more difficult to remember and the sequence of assembly less

obvious. It would also be an interesting and attractive variation on the basic concept to have each of the parts or each of the blocks presented in a different color.

Numerous modifications and variations of the  
5 described embodiment may be employed without departing from the inventive concept herein. It is therefore seen that this invention achieves its stated objectives.